AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (Currently amended) A method for producing a support for planographic printing plates, which comprises a step of roughening at least one surface of an aluminum plate and in which the surface-roughening step includes[[;]]:

(a) a pre-electrolytic surface-roughening step of electrolytically pre-roughening the surface of the aluminum plate in an aqueous hydrochloric acid solution that contains hydrochloric acid as the essential acid ingredient,

(b) an alkali-etching step of contacting the aluminum plate of which the surface has been electrolytically pre-roughened in the previous pre-electrolytic surface-roughening step, with an alkali solution to etch the aluminum plate,

(c) a desmutting step of desmutting the aluminum plate having been etched in the previous alkali-etching step, with sulfuric acid by contacting the aluminum plate with an aqueous sulfuric acid solution having a sulfuric acid concentration of from 250 to 500 g/liter and an aluminum ion concentration of from 1 to 15 g/liter and having a liquid temperature falling between 60 and 90°C, for a contact period of time falling between 1 and 180 seconds, and

(d) an electrolytic surface-roughening step of processing the aluminum plate having been desmutted in the previous desmutting step, in an aqueous nitric acid solution with an alternating current being applied thereto.

2. (Currently amended) ~~The method for producing a support for planographic printing plates as claimed in claim 1~~ A method for producing a support for planographic printing plates, which comprises a step of roughening at least one surface of an aluminum plate and in which the surface-roughening step includes:

(a) a pre-electrolytic surface-roughening step of electrolytically pre-roughening the surface of the aluminum plate in an aqueous hydrochloric acid solution that contains hydrochloric acid as the essential acid ingredient,

(b) an alkali-etching step of contacting the aluminum plate of which the surface has been electrolytically pre-roughened in the previous pre-electrolytic surface-roughening step, with an alkali solution to etch the aluminum plate,

(c) a desmutting step of desmutting the aluminum plate having been etched in the previous alkali-etching step, with sulfuric acid by contacting the aluminum plate with an aqueous sulfuric acid solution having a sulfuric acid concentration of from 250 to 500 g/liter and an aluminum ion concentration of from 1 to 15 g/liter and having a liquid temperature falling between 60 and 90°C, for a contact period of time falling between 1 and 180 seconds, and

(d) an electrolytic surface-roughening step of processing the aluminum plate having been desmutted in the previous desmutting step, in an aqueous nitric acid solution with an alternating current being applied thereto,

wherein the surface-roughening step includes an etching step of contacting the aluminum plate with an alkali solution to etch the plate, prior to the pre-electrolytic surface-roughening step.

3. (Original) The method for producing a support for planographic printing plates as claimed in claim 1, wherein the surface-roughening step includes a mechanical surface-roughening step of mechanically roughening at least one surface of the aluminum plate, prior to the pre-electrolytic surface-roughening step.

4. (Currently amended) The method for producing a support for planographic printing plates as claimed in claim 1, wherein the surface roughening step includes[[;]]:

a second etching step of etching the aluminum plate, of which the surface has been roughened in the electrolytic surface-roughening step, with an alkali solution, and

a final desmutting step of desmutting the aluminum plate which has been etched in the second etching step, by contacting the aluminum plate with an aqueous sulfuric acid solution.

5. (Currently amended) The method for producing a support for planographic printing plates as claimed in claim 4, wherein the aluminum plate is so etched after <u>being</u> processed in the electrolytic surface-roughening step that from 0.01 to 5 g/m^2 of its surface is dissolved.

6. (Currently amended) The method for producing a support for planographic printing plates as claimed in claim 2, wherein the aluminum plate is so etched before being processed in the pre-electrolytic surface-roughening step that from 1 to 15 g/m^2 of its surface is dissolved.

7. (Currently amended) The method for producing a support for planographic printing plates as claimed in claim 1, wherein[[;]]:

an AC electrolytic cell having therein a counter electrode to impart an alternating current to the aluminum plate is used in the electrolytic surface-roughening step, and

the alternating current to be applied to the aluminum plate is so controlled that the quiescent time for which no current flows between the aluminum plate and the counter electrode falls between 0.001 and 0.6 second and that the pulse rise time, Tp, within which the current waveform rises up falls between 0.01 and 0.3 millisecond.

8. (Original) The method for producing a support for planographic printing plates as claimed in claim 1, which includes a step of anodic oxidation to form an oxide film on the surface of the aluminum plate of which the surface has been roughened in the surface-roughening step.

9. (Original) The method for producing a support for planographic printing plates as claimed in claim 8, wherein the anodic oxidation step includes a step of making the oxide film formed on the surface of the aluminum plate hydrophilic.

10. (Original) The method for producing a support for planographic printing plates as claimed in claim 8, wherein the anodic oxidation step includes a step of sealing micropores that exist in the oxide film formed on the surface of the aluminum plate.

11. (Original) The method for producing a support for planographic printing plates as claimed in claim 1, wherein the aluminum plate has an aluminum content falling between 95 and 99.4 % by weight and a silicon content falling between 0.15 and 1 % by weight.

12. (Original) The method for producing a support for planographic printing plates as claimed in claim 1, wherein the aluminum plate has an aluminum content falling between 95 and 99.4 % by weight and a manganese content falling between 0.1 and 1.5 % by weight.

13. (Original) A support for planographic printing plates, which is produced according to claim 1.

14. (Original) A planographic printing plate precursor, which comprises the support of claim 13 and a photosensitive or thermosensitive plate layer formed on the roughened surface of the support.

15. (Original) A method for producing a support for planographic printing plates, which comprises a step of roughening at least one surface of an aluminum plate,

the surface-roughening step includes an AC-electrolytic surface-roughening step of processing the aluminum plate in an aqueous nitric acid solution having a nitrate ion concentration and an aluminum ion concentration of from 5 to 15 g/liter each, and an ammonium ion concentration of from 10 to 300 ppm, and having a bath temperature falling between 50 and 80°C.

16. (Original) The method for producing a support for planographic printing plates as claimed in claim 15, wherein the AC-electrolytic surface-roughening step is so controlled that the ratio of the quantity of electricity QA of the alternating current applied to the aluminum plate acting as an anode, to the quantity of electricity QC thereof applied to the aluminum plate acting as a cathode, QA/QC falls between 0.9 and 1, the current duty is 0.5, and the current frequency falls between 40 and 120 Hz.

17. (Original) The method for producing a support for planographic printing plates as claimed in claim 15, wherein the alternating current to be applied to the aluminum plate in the

AC-electrolytic surface-roughening step is so controlled that the pulse rise time, Tp, within which the current waveform rises up falls between 0.01 and 0.3 millisecond, and the quiescent time for which no current flows through the aluminum plate falls between 0.001 and 0.6 second.

18. (Currently amended) The method for producing a support for planographic printing plates as claimed in claim 15, wherein[[;]]:

an AC electrolytic cell unit which comprises an electrolytic cell containing therein the aqueous nitric acid solution and enabling the aluminum plate to pass through it, a power source for applying an alternating current to the aluminum plate, and a counter electrode disposed inside the cell so as to face the aluminum plate while the plate is electrolytically processed therein, and in which an alternating current is applied between the aluminum plate and the counter electrode to thereby electrolytically roughen the surface of the aluminum plate, is used in the AC-electrolytic surface-roughening step, and

~~and~~ the AC mode is so controlled that it includes at least once the quiescent time for which no alternating current flows between the aluminum plate and the counter electrode and that the quiescent time falls between 0.001 and 0.6 second/once.

19. (Currently amended) The method for producing a support for planographic printing plates as claimed in claim 15, wherein the surface-roughening step comprises[[;]]:

a first etching step of contacting the aluminum plate with an aqueous alkali solution to etch the aluminum plate,

the AC-electrolytic surface-roughening step of roughening the thus-etched surface of the aluminum plate, and

a second etching step of further contacting the thus-roughened aluminum plate with an aqueous alkali solution to etch the aluminum plate, in that order.

20. (Original) The method for producing a support for planographic printing plates as claimed in claim 19, wherein the aluminum plate is dissolved to a degree of from 1 to 15 g/m^2 in the first etching step, and is dissolved to a degree of from 0.01 to 5 g/m^2 in the second etching step.

21. (Original) The method for producing a support for planographic printing plates as claimed in claim 19, wherein the surface-roughening step includes a first desmutting step of contacting the aluminum plate with an aqueous acid solution between the first etching step and the AC-electrolytic surface-roughening step, and includes a second desmutting step of further contacting the aluminum plate with an aqueous acid solution after the second-etching step.

22. (Original) The method for producing a support for planographic printing plates as claimed in claim 19, wherein the surface-roughening step includes a step of mechanically roughening at least one surface of the aluminum plate, prior to the first etching step.

23. (Original) The method for producing a support for planographic printing plates as claimed in claim 15, wherein the aluminum plate of which at least one surface has been roughened in the surface-roughening step is subjected to anodic oxidation to thereby form an oxide film on its roughened surface.

24. (Original) The method for producing a support for planographic printing plates as claimed in claim 23, wherein the surface of the aluminum plate having the oxide film formed thereon is made hydrophilic.

25. (Original) The method for producing a support for planographic printing plates as claimed in claim 23, wherein the anodic oxidation step includes a step of sealing micropores that exist in the oxide film formed on the surface of the aluminum plate.

26. (Original) The method for producing a support for planographic printing plates as claimed in claim 15, wherein the aluminum plate has an aluminum content falling between 95 and 99.4 % by weight and a silicon content falling between 0.15 and 1 % by weight.

27. (Original) The method for producing a support for planographic printing plates as claimed in claim 15, wherein the aluminum plate has an aluminum content falling between 95 and 99.4 % by weight and a manganese content falling between 0.1 and 1.5 % by weight.

28. (Original) A support for planographic printing plates, which is produced according to claim 15.

29. (Original) A planographic printing plate precursor, which comprises the support of claim 28 and a photosensitive or thermosensitive plate layer formed on the roughened surface of the support.

30-52. (Canceled)